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REVIEWS OF RECENT LITERATURE.

ANTHROPOLOGY.

Origin of Culture.¹ — Notwithstanding the classical works of Bastian, Ratzel, and Tylor upon culture history, and the papers of others scarcely less eminent, L. Frobenius, in his treatise upon African Culture, deplores the fact that so little has been done to discover the origin of culture and that so little is known of the true "world-history." He compares the present state of culture with the joint or internode at the top of a bamboo stem. That which is beneath our internode is unknown to us; in whatever direction we may turn we are confronted by unsolved ethnological problems, so that our examination of the records of the past speedily terminates in the Aryan, Babylonian, and other questions. The author makes the usual observation in regard to the need of haste in gathering information and specimens from those inferior races who are being civilized off the face of the earth. A noteworthy feature of this memoir is the stress laid upon the "natural history method" of treatment. Frobenius declares that much has been heard of this method but little seen. Culture is continually compared to a living organism that has its birth, development, and decay; it is borne about by man, but changes much more slowly than he; it is through its study that we shall learn of the migrations of men and come to know something of the greater world-history. About 200 pages are devoted to the study of the "morphology" and the "comparative anatomy" of African culture, in which the internal structure, outward form, and the distribution of the huts, weapons, implements, and other artifacts are described in detail. Perhaps the most originality appears in the third part of the work, which is devoted to the "culture-physiology" of Africa. By this is meant the status of each art in its own particular life cycle; the declining and stationary arts include those of Negritic and Malay-Negritic origin, now represented by artifacts in wood and bamboo; the developing technic arts are of Asiatic and African origin, and are confined chiefly to articles of iron, hide,

¹ Frobenius, L. *Der Ursprung der afrikanischen Kulturen*. Berlin, Gebrüder Borntraeger, 1898.

and leather. Much that has been classed as "techno-geography" and "anthropo-geography" is included in this memoir under "culture-physiology." Frobenius has made a decided gain in lucidity and directness of presentation of his subject by employing this formal nomenclature; in less skillful hands it might lead to the warping of facts to fit them to the plan of research.

A series of 26 charts accompanies the volume upon which the various culture areas are indicated. There is a fascinating appearance of finality about such diagrams, yet, owing to the many sources of error in museum records, from which the charts were made out, they must at best be regarded as provisional and incomplete. The value of the memoir is enhanced by numerous illustrations in the text.

FRANK RUSSELL.

GENERAL BIOLOGY.

Embryos without Maternal Nuclei.¹ — By separating by hand under the microscope the unfertilized egg of the sea-urchin, Delage has obtained one part containing a nucleus and ovicenter and a part devoid of them. When these parts were placed in a drop of water containing a normal egg and spermatozoa were added, spermatozoa entered into all three pieces and all cleaved. The whole egg developed the most rapidly, the nucleated fragment came next, and the enucleate fragment most slowly. All were carried to the gastrula stage; the embryo without maternal nuclei being of small size and having the enteric and blastocœlic cavities nearly obliterated. Thus there has been effected the fecundation and development of a fragment of an egg without egg nucleus and without ovicenter. Delage draws the following weighty conclusions: —

1. It is necessary to reject as too strict the ordinary definition of fecundation — the union of the male and female pronuclei. This union occurs, but is not the essential phenomenon.

2. The definition of Fol — the union of two pronuclei and of two demi-ovicenters with two demi-spermcenters — must also be rejected. It must be rejected also on account of the often observed fact that the absence of the ovicenter offers no obstacle to segmentation.

3. Any theory must be rejected which explains fecundation by the saturation of a female nuclear polarity by a male nuclear polarity,

¹ Delage, Yves. Embryons sans noyau maternel, *Compt. Rend.*, 1898.